## THE ECOLOGY OF THE MANGROVES OF SOUTH FLORIDA: A COMMUNITY PROFILE

bу

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## REFERENCES

- Abele, L.G. 1974. Species diversity of decapod crustaceans in marine habitats. Ecology 55: 156-161.
- Ahearn, D.G., F.J. Roth, and S.P. Meyers. 1968. Ecology and characterization of yeasts from aquatic regions of south Florida. Mar. Biol. 1: 291-308.
- Albert, R. 1975. Salt regulation in halophytes. Oecologia 21: 57-71.
- Alexander, T.R. 1967. Effect of Hurricane Betsy on the southeastern Everglades. Q. J. Fla. Acad. Sci. 30: 10-24.
- Allen, R.P. 1942. The roseate spoonbill. Res. Rep. 2. National Audubon Society, New York.
- Almodovar, L.R., and R. Biebl. 1962. Osmotic resistance of mangrove algae around La Parguera, P.R. Rev. Algol. (N.S.) 6(3): 203-208.
- Atkinson, M.R., G.P. Findlay, A.B. Hope, M.G. Pitman, H.D.W. Saddler, and H.R. West. 1967. Salt regulation in the mangroves Rhizophora mangle Lam. and Aerialitis annulata R. Aust. J. Biol. Sci. 20: 589-599.
- Austin, H. 1971. A survey of the ichthyofauna of the mangroves of western Puerto Rico during December 1967 August 1968. Caribb. J. Sci. 11: 27-39.
- Austin, H., and S. Austin. 1971. The feeding habitats of some juvenile marine fishes from the mangroves in western Puerto Rico. Caribb. J. Sci. 11: 171-178.

- Bacon, P.R. 1970. The ecology of Caroni Swamp. Special Publication, Central Statistical Office, Trinidad. 68 pp.
- Bader, R.G., and M.A. Roessler. 1971.
  Progress report on an ecological study of south Biscayne Bay and Card Sound. Rosenstiel School of Marine and Atmospheric Science, Univ. of Miami, to U.S. Atomic Energy Commission and Florida Power and Light Company.
- Bader, R.G., and M.A. Roessler. 1972.
  Progress report on an ecological study of south Biscayne Bay and Card Sound. Rosenstiel School of Marine and Atmospheric Science, Univ. of Miami, to U.S. Atomic Energy Commission and Florida Power and Light Company.
- Bailey, R.M., J.E. Fitch, E.S. Heald, E.A. Lackner, C.C. Lindsey, C.R. Robins, and W.B. Scott. 1970. A list of common and scientific names of fishes from the United States and Canada. 3rd ed. Spec. Publ. 6, Am. Fish. Soc., Washington, D.C. 150 pp.
- Baker, J.M. 1971. The effects of oil on plant physiology. Pages 88-98 in E.B. Cowell, ed. Ecological effects of oil pollution. Applied Science Publishers, London.
- Baker, M.C., and E.M. Baker. 1973. Niche relationships among six species of shorebirds on their wintering and breeding ranges. Ecol. Monogr. 43: 193-212.
- Ball, M.C. 1980. Patterns of secondary succession in a mangrove forest in south Florida. Oecologia 44: 226-235.

- Beever, J.W., D. Simberloff, and L.L. King. 1979. Herbivory and predation by the mangrove tree crab, Aratus pisonii. Oecologia 43: 317-328.
- Bennett, S.E. 1980. Interspecific competition and the niche of the American redstart (Setophaga ruticilla) in wintering and breeding communities. Pages 319-335 in A. Keast and E.S. Morton, eds. Birds in the neotropics: ecology, behavior, distribution, and conservation. Smithsonian Inst. Press, Washington, D.C.
- Biebl, R. 1962. Protoplasmatischokologische Untersuchungen an Mangrovealgen von Puerto Rico. Protoplasma 55: 572-606.
- Birdsong, R.S. 1981. A review of the gobiid fish genus Microgobius Poey. Bull. Mar. Sci. 31: 267-306.
- Birnhak, B.I., and J.P. Crowder. 1974.

  Evaluation of the extent of vegetative habitat alteration in south Florida, 1943-1970. Appendix to south Florida ecological study. Prepared by U.S. Department of the Interior, Bureau of Sport Fish and Wildlife, Atlanta, Ga.
- Bohlke, J.E., and C.C.G. Chaplin. 1968. Fishes of the Bahamas and adjacent tropical waters. Academy of Natural Sciences of Philadelphia, Livingston Publ. Co., Wynnewood, Pa. 771 pp.
- Boto, K.G., and J.S. Bunt. 1981. Tidal export of particulate organic matter from a northern Australian mangrove system. Estuarine Coastal Shelf Sci. 13: 247-257.
- Bowman, H.H.M. 1917. Ecology and physiology of red mangroves. Proc. Am. Philos. Soc. 56: 589-672.
- Bray, J.R., and E. Gorham. 1964. Litter production in forests of the world. Adv. Ecol. Res. 2: 101-157.
- Breder, C.M. 1946. An analysis of the deceptive resemblance of fishes to plant parts, with critical remarks on protective coloration, mimicry and adaptation. Bull. Bingham Oceanogr. Collect. 10: 1-49.

- Breen, C.M., and B.J. Hill. 1969. A mass mortality of mangroves in the Kosi estuary. Trans. R. Soc. S. Afr. 38: 285-303.
- Brook, I. 1975. Some aspects of the trophic relationships among the higher consumers in a seagrass community (<u>Thalassia testudinum</u>) in Card Sound, Florida. Dissertation. Univ. of Miami, Coral Gables, Fla. 133 pp.
- Burkholder, P.R., and L.R. Almodovar. 1973. Studies on mangrove algal communities in Puerto Rico. Fla. Sci. 36: 50-66.
- Carlberg, S.R. 1980. Oil pollution of the marine environment--with an emphasis on estuarine studies. Pages 367-402 in E. Olausson and I. Cato, eds. Chemistry and biogeochemistry of estuaries. John Wiley and Sons, New York.
- Carlton, J.M. 1974. Land-building and stabilization by mangroves. Environ. Conserv. 1: 285-294.
- Carlton, J.M. 1975. A guide to common Florida salt marsh and mangrove vegetation. Fla. Mar. Res. Publ. 6.
- Carlton, J.M. 1977. A survey of coastal vegetation communities of Florida. Fla. Mar. Res. Publ. 30.
- Carr, A.W., and C.J. Goin. 1955. Reptiles, amphibians and freshwater fishes of Florida. Univ. of Florida, Gainesville. 341 pp.
- Carr, W.E.S., and C.A. Adams. 1973. Food habits of juvenile marine fishes occupying seagrass beds in the estuarine zone near Crystal River, Florida. Trans. Am. Fish. Soc. 102: 511-540.
- Carter, M.R., L.A. Burus, T.R. Cavinder, K.R. Dugger, P.L. Fore, D.B. Hicks, H.L. Revells, and T.W. Schmidt. 1973. Ecosystem analysis of the Big Cypress Swamp and estuaries. U.S. Environmental Protection Agency Region IV, Atlanta, Ga.
- Casagrande, D.J., and P.H. Given. 1975. Geochemistry of amino acids in some

- Florida peat accumulations. I. Analytical approach and total amino acid concentration. Geochim. Cosmochim. Acta 38: 419-434.
- Cawkell, E.M. 1964. The utilization of mangroves by African birds. Ibis 106: 251-253.
- Chan, E.I. 1977. Oil pollution and tropical littoral communities: biological effects of the 1975 Florida Keys oil spill. Pages 539-542 in Proceedings 1977 oil spill conference. American Petroleum Institute, Environmental Protection Agency and U.S. Coast Guard: 539-542.
- Chapman, V.J. 1970. Mangrove phytosociology. Trop. Ecol. 11: 1-19.
- Chapman, V.J. 1976a. Mangrove vegetation. J. Cramer, Germany. 447 pp.
- Chapman, V.J. 1976b. Coastal vegetation. Pergamon Press, New York. 292 pp.
- Cintron, G., A.E. Lugo, D.J. Pool, and G. Morris. 1978. Mangroves of arid environments in Puerto Rico and adjacent islands. Biotropica 10: 110-121.
- Clark, E., and K. von Schmidt. 1965. Sharks of the central gulf coast of Florida. Bull. Mar. Sci. 15: 13-83.
- Clark, S.H. 1970. Factors affecting the distribution of fishes in Whitewater Bay, Everglades National Park, Florida. Dissertation. Univ. of Miami, Coral Gables, Fla.
- Clough, B.F. 1981. Mangrove ecosystems in Australia. National University Press, Australia. 300 pp.
- Coastal Coordinating Council, State of Florida. 1974. Florida coastal zone management atlas. Coastal Coordinating Council, Tallahassee, Fla.
- Cohen, A.D., and W. Spackman. 1974. The petrology of peats from the Everglades and coastal swamps of southern Florida. Miami Geol. Soc. Mem. 2: 233-255.

- Coomans, H.E. 1969. Biological aspects of mangrove mollusks in the West Indies. Malacologia 9: 79-84.
- Courtney, C.M. 1975. Mangrove and seawall oyster communities at Marco Island, Florida. Bull. Am. Malacol. Union Inc. 41: 29-32.
- Courtney, C.M. 1980. Production and decomposition in an impounded black mangrove forest. Fla. Sci. 43 (supplement): 23.
- Craighead, F.C. 1964. Land, mangroves and hurricanes. Fairchild Trop. Gard. Bull. 19: 5-32.
- Craighead, F.C., and V.C. Gilbert. 1962.
  The effects of Hurricane Donna on the vegetation of southern Florida. Q. J. Fla. Acad. Sci. 25: 1-28.
- Croaker, R.A. 1962. Growth and food of the gray snapper, <u>Lutjanus griseus</u>, in Everglades National Park. Trans. Am. Fish. Soc. 91: 379-383.
- Darnell, R.M. 1958. Food habits of fishes and larger invertebrates of Lake Pontchartrain, Louisiana, an estuarine community. Publ. Inst. Mar. Sci. Univ. Tex. 5: 353-416.
- Darnell, R.M. 1961. Fishes of the Rio Tamesi and related coastal lagoon in east-central Mexico. Publ. Inst. Mar. Sci. Univ. Tex. 8: 299-365.
- Davis, C.C., and R.H. Williams. 1950. Brackish water plankton of mangrove areas in southern Florida. Ecology 31: 519-531.
- Davis, J.H., Jr. 1940. The ecology and geologic role of mangroves in Florida. Carnegie Institute, Washington, D.C. Publ. 517. Tortugas Lab. Pap. 32: 303-412.
- Davis, J.H., Jr. 1942. The ecology of the vegetation and topography of the Sand Keys of Florida. Tortugas Lab. Pap. 3: 113-195.
- Davis, J.H., Jr. 1943. The natural features of south Florida, especially

- the vegetation and the Everglades. Fla. Geol. Surv. Bull. 25: 1-333.
- Davis, J.H., Jr. 1946. Peat deposits of Florida, their occurrence, development and uses. Fla. Geol. Surv. Bull. 30.
- de la Cruz, A.A. (in press, a) Economic evaluations and ecological implications of alternative uses of mangrove swamps in Southeast Asia. Proceedings of the Asia symposium on mangrove environment: research and management. Univ. of Malaya, Kuala Lampur, Malaysia.
- de la Cruz, A.A. (in press, b) The impact of crude oil and oil-related activities on coastal wetlands--a review. Proceedings of the international wetlands conference, Delhi, India.
- Dent, J.M. 1947. Some soil problems in empoldered rice lands in Sierra Leone. Emp. J. Exp. Agric. 15: 206-212.
- Desselle, W.J., M.A. Poirrier, J.S. Rogers and R.C. Cashner. 1978. A discriminant functions analysis of sunfish (Lepomis) food habits and feeding niche segregation in the Lake Pontchartrain, Louisiana estuary. Trans. Am. Fish. Soc. 107: 713-710.
- de Sylva, D.P., and H.B. Michel. 1974.

  Effects of mangrove defoliation on the estuarine ecology of South Viet Nam. Pages 710-728 in G. Walsh, S. Snedaker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.
- Dunson, W.A. 1979. Occurrence of partially striped forms of the mangrove snake, Nerodia fasciata compressicauda Kennicott, and comments on the status of N. f. taeniata Cope. Fla. Sci. 42: 102-112.
- Eaton, S.W. 1953. Wood warblers wintering in Cuba. Wilson Bull. 65: 169-174.

- Egler, F.E. 1948. The dispersal and establishment of the red mangrove, Rhizophora, in Florida. Caribb. For. 9: 299-310.
- Egler, F.E. 1952. Southeast saline Everglades vegetation, Florida, and its management. Vegetatio 3: 213-265.
- Emlen, J.T. 1977. Land bird communities of Grand Bahama Island: the structure and dynamics of an avifauna. A.O.U. Ornithol. Monogr. 24.
- Enright, J.T. 1974. Mangroves, isopods and the ecosystem. Science 183: 1037.
- Ernst, C.H., and R.W. Barbour. 1972. Turtles of the United States. Univ. of Kentucky Press, Lexington. 299 pp.
- Estevez, E.D. 1978. Ecology of <u>Sphaeroma</u> terebrans Bate, a wood boring isopod, in a Florida mangrove forest. Ph.D. Dissertation. Univ. of South Florida, Tampa. 168 pp.
- Estevez, E.D., and J.L. Simon. 1975.

  Systematics and ecology of Sphaeroma (Crustacea: Isopoda) in the mangrove habitats of Florida. Pages 286-304 in G. Walsh, S. Snedaker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.
- Evink, G.L. 1975. Macrobenthos comparisons in mangrove estuaries. Pages 256-285 in G. Walsh, S. Snedaker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.
- Federal Register. 1980. 45(99): 33768-33781.
- Fell, J.W. 1975. Phycomycetes associated with degrading mangrove leaves. Can. J. Bot. 53: 2908-2922.
- Fell, J.W. 1980. The association and potential role of fungi in mangrove detrital systems. Bot. Mar. 23: 257-263.

- Fell, J.W., and I.M. Master. 1973. Fungi associated with the degradation of mangrove (R. mangle) leaves in south Florida. Pages 455-466 in H.L. Stevenson and R.R. Colwell, eds. Estuarine microbial ecology. Univ. of South Carolina Press, Columbia.
- Fell, J.W., and S.Y. Newell. 1980. Role of fungi in carbon flow and nitrogen immobilization in coastal marine plant litter systems. In D.T. Wicklow and G.C. Carroll, eds. The fungal community: its organization and role in the ecosystem. Marcel Dekker, New York.
- Fell, J.W., R.C. Cefalu, I.M. Master, and A.S. Tallman. 1975. Microbial activities in the mangrove (Rhizophora mangle) leaf detrital system. Pages 661-679 in G. Walsh, S. Snedaker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.
- Fell, J.W., I.M. Master, and S.Y. Newell.

  1980. Laboratory model of the potential role of fungi (Phytophthora spp.) in the decomposition of red mangrove (Rhizophora mangle) leaf litter. In K.R. Tenore and B.C. Coull, eds. Marine benthic dynamics. Univ. of South Carolina Press, Columbia.
- Ffrench, G.D. 1966. The utilization of mangroves by birds in Trinidad. Ibis 108: 423-424.
- Field, G.D. 1968. Utilization of mangroves by birds on the Freetown Peninsula, Sierra Leone. Ibis 110: 354-357.
- Fosberg, F.R. 1961. Vegetation-free zones of dry mangrove coasts. U.S. Geol. Surv. Prof. Pap. 365: 216-218.
- Fosberg, F.R. 1971. Mangroves versus tidal waves. Biol. Conserv. 4: 38-39.
- Gerlach, S. 1958. Die Mangroveregion tropischer Duesten als Lebensraum. Z. Morphol. Oekol. Tiere 46: 636-730.

- Gilfillan, E.S., R.P. Gerber, and D.S. Page. 1981. Effects of the Zoe Colocotroni oil spill on infaunal communities associated with mangroves. Pages 71-87 in R.C. Carey, P.S. Markovits and J.B. Kirkwood, eds. Proceedings U.S. Fish and Wildlife Service workshop on coastal ecosystems of the Southeastern United States. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C. FWS/OBS-80/59.
- Gill, A.M. 1970. The mangrove fringe on the eastern Pacific. Fairchild Trop. Gard. Bull. 25: 7-11.
- Gill, A.M., and P.B. Tomlinson. 1969.
  Studies on the growth of red mangrove
  (Rhizophora mangle L.). I. Habitat
  and general morphology. Biotropica
  1: 1-9.
- Gill, A.M., and P.B. Tomlinson. 1971.
  Studies on the growth of red mangrove (Rhizophora mangle L.). II. Growth and differentiation of aerial roots.
  Biotropica 3: 63-77.
- Gill, A.M., and P.B. Tomlinson. 1977. Studies on the growth of red mangrove (Rhizophora mangle L.). IV. The adult root system. Biotropica 9: 145-155.
- Girard, G.T., and W.K. Taylor. 1979. Reproductive parameters for nine avian species at Moore Creek, Merritt Island National Wildlife Refuge, Florida. Fla. Sci. 42: 94-102.
- Goforth, H.W., and J.R. Thomas. 1979.
  Plantings of red mangroves (Rhizo-phora mangle) for stabilization of marl shorelines in the Florida Keys.
  Pages 207-230 in Proceedings 6th annual conference on the restoration and creation of wetlands. Hills-borough Community College, Tampa, Fla.
- Golley, F.B. 1972. Tropical ecology with an emphasis on organic productivity. Pages 407-413 in F.B. Golley and R. Misra, eds. Tropical ecology. Univ. of Georgia, Athens.
- Golley, F.B., H.T. Odum, and R.F. Wilson. 1962. The structure and metabolism

- of a Puerto Rican red mangrove forest in May. Ecology 43: 1-19.
- Golley, F.B., J.T. McGinnis, R.G. Clements, G.I. Child, and M.J. Duever. 1974. Mineral cycling in a tropical moist forest ecosystem. Univ. of Georgia Press, Athens.
- Goodbody, I. 1961. Inhibition of the development of a marine sessile community. Nature 190: 282-283.
- Goodwin, T.M. 1979. Waterfowl management practices employed in Florida and their effectiveness on native and migratory waterfowl populations. Fla. Sci. 42: 123-129.
- Gore, R. 1977. The tree nobody liked. Natl. Geogr. Mag. 151: 669-689.
- Gotto, J.W., and B.F. Taylor. 1976. No fixation associated with decaying leaves of the red mangrove, Rhizo-phora mangle. Appl. Environ. Microbiol. 31: 781-783.
- Gotto, J.W., F.R. Tabita, and C.V. Baalen. 1981. Nitrogen fixation in intertidal environments of the Texas gulf coast. Estuarine Coastal Shelf Sci. 12: 231-235.
- Gunter, G. 1956. A revised list of euryhaline fishes of North and middle America. Am. Midl. Nat. 56: 345-354.
- Gunter, G., and G.E. Hall. 1965. A biological investigation of the Caloosahatchee estuary of Florida. Gulf Res. Rep. 2: 1-71.
- Haines, E. 1976. Stable carbon isotope ratios in the biota, soils and tidal water of a Georgia salt marsh. Estuarine Coastal Mar. Sci. 4: 609-616.
- Hall, E.R. 1981. The mammals of North America. Vol. 1. 2nd ed. John Wiley and Sons, New York. 600 pp.
- Hamilton, W.J., Jr., and J.O. Whittaker, Jr. 1979. Mammals of the Eastern United States. 2nd ed. Cornell Univ. Press, Ithaca, N.Y. 345 pp.
- Hanlon, R., F. Bayer, and G. Voss. 1975. Guide to the mangroves, buttonwood

- and poisonous shoreline trees of Florida, the Gulf of Mexico and the Caribbean Region. Univ. of Miami Sea Grant Field Guide Series 3. 29 pp.
- Hart, M.G.R. 1962. Observations on the source of acid in empoldered mangrove soils. I. Formation of elemental sulphur. Plant Soil 17: 87-98.
- Hart, M.G.R. 1963. Observations on the source of acid in empoldered mangrove soils. II. Oxidation of soil polysulphides. Plant Soil 19: 106-114.
- Haverschmidt, F. 1965. The utilization of mangroves by South American birds. Ibis 107: 540-542.
- Heald, E.J. 1969. The production of organic detritus in a south Florida estuary. Ph.D. Dissertation. Univ. of Miami, Fla. 110 pp.
- Heald, E.J. 1971. The production of organic detritus in a south Florida estuary. Univ. of Miami Sea Grant Tech. Bull. 6. 110 pp.
- Heald, E.J., and W.E. Odum. 1970. The contribution of mangrove swamps to Florida fisheries. Proc. Gulf Caribb. Fish. Inst. 22: 130-135.
- Heald, E.J., W.E. Odum, and D.C. Tabb. 1974. Mangroves in the estuarine food chain. Miami Geol. Soc. Mem. 2: 182-189.
- Heald, E.J., M.A. Roessler, and G.L. Beardsley. 1979. Litter production in a southwest Florida black mangrove community. Pages 24-33 in Proceedings Florida antimosquito association 50th meeting.
- Hesse, P.R. 1961. The decomposition of organic material in a mangrove swamp soil. Plant Soil 14: 249-263.
- Hesse, P.R. 1962. Phosphorous fixation in mangrove swamp muds. Nature 193: 295-296.
- Hicks, D.B., and L.A. Burns. 1975. Mangrove metabolic response to alterations of natural freshwater drainage to southwestern Florida estuaries. Pages 238-255 in G. Walsh,

- S. Snedacker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.
- Hobbs, H.H., Jr. 1942. The crayfishes of Florida. Univ. Fla. Biol. Sci. Ser. 3: 1-179.
- Hoffman, W.E., and C.J. Dawes. 1980. Photosynthetic rates and primary production by two Florida benthic red algal species from a salt marsh and a mangrove community. Bull. Mar. Sci. 30: 358-364.
- Hofstetter, R.H. 1974. The effect of fire on the pineland and sawgrass communities of southern Florida. Miami Geol. Soc. Mem. 2: 201-209.
- Holdridge, L.R. 1940. Some notes on the mangrove swamps of Puerto Rico. Caribb. For. 1: 19-29.
- Holm, R.F. 1977. The standing crop of fishes in a tropical marine lagoon. Fla. Sci. 4: 258-261.
- Hopper, B.E., J.W. Fell, and R.C. Cefalu. 1973. Effect of temperature on life cycles of nematodes associated with the mangrove (R. mangle) detrital system. Mar. Biol. 23: 293-296.
- Howarth, R.W., and J.M. Teal. 1980. Energy flow in a salt marsh ecosystem: the role of reduced inorganic sulfur compounds. Am. Nat. 116: 862-872.
- Howell, A.H. 1932. Florida bird life. Florida Department of Game and Fresh Water Fisheries. Cowan-McCann, Inc., New York. 579 pp.
- Hudson, H.J., D.M. Allen, and T.J. Costello. 1970. The flora and fauna of a basin in central Florida Bay. U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 604. Washington, D.C. 14 pp.
- Hutto, R.L. 1980. Winter habitat distribution of migratory land birds in Western Mexico, with special reference to small foliage-gleaning insectivores. Pages 181-203 in A. Keast and E.S. Morton, eds. Migrant birds

- in the neotropics: ecology, behavior, distribution, and conservation. Smithsonian Inst. Press, Washington, D.C.
- Idyll, C.P. 1965a. Shrimp need freshwater, too. Natl. Parks Mag. 39: 14-15.
- Idyll, C.P. 1965b. The freshwater requirements of Everglades National Park. Univ. of Miami Institute of Marine Science (mimeo). 3 pp.
- Idyll, C.P., D.C. Tabb, and B. Yokel. 1968. The value of estuaries to shrimp. Pages 83-90 in J.D. Newsom, ed. Marsh and estuary management symposium. Louisiana State University Press, Baton Rouge.
- Jenik, J. 1967. Root adaptations in west African trees. J. Linn. Soc. Lond. Bot. 60: 126-140.
- Kahl, M.P., Jr. 1964. Food ecology of the wood stork (<u>Mycteria americana</u>) in Florida. Ecol. Monogr. 34: 97-117.
- Keast, A. 1980. Spatial relationships between migratory parulid warblers and their ecological counterparts in the neotropics. Pages 109-130 in A. Keast and E.S. Morton, eds. Migrant birds in the neotropics: ecology, behavior, distribution, and conservation. Smithsonian Inst. Press, Washington, D.C.
- Kilby, J.D. 1955. The fishes of two gulf coastal marsh areas of Florida. Tulane Stud. Zool. 2: 176-247.
- Kohlmeyer, J. 1969. Ecological notes on fungi in mangrove forests. Trans. Brit. Mycol. Soc. 53: 237-250.
- Kohlmeyer, J., and E. Kohlmeyer. 1979. Marine mycology. The higher fungi. Academic Press, New York. 690 pp.
- Kolehmainen, S.E. 1973. Ecology of sessile and free-living organisms on mangrove roots in Jobos Bay. Pages 141-173 in Aguirre Power Project environmental studies 1972, annual report. Puerto Rico Nuclear Center.
- Kolehmainen, S.E., and W.K. Hildner. 1975. Zonation of organisms in Puerto Rican

- red mangrove (Rhizophora mangle L.) swamps. Pages 357-369 in G.E. Walsh, S.C. Snedaker and H.J. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.
- Kolehmainen, S.E., T.O. Morgan, and R. Castro. 1974. Mangrove root communities in a thermally altered area in Guayanilla Bay, Puerto Rico. In J.W. Gibbons and R.R. Scharitz, eds. Thermal ecology. U.S. AEC Conf. 730505.
- Kuenzler, E.J. 1974. Mangrove swamp systems. Pages 346-371 in H.T. Odum, B.J. Copeland and E.A. McMahon, eds. Coastal ecological systems. Vol. 1. Conservation Foundation, Washington, D.C.
- Kushlan, J.A. 1976. Site selection for nesting colonies of white ibis, <u>Eudo-cimus albus</u>, in Florida. Ibis 118: 590-593.
- Kushlan, J.A. 1977a. Population energetics of the white ibis. Auk 94: 114-122.
- Kushlan, J.A. 1977b. Foraging behavior of the white ibis. Wilson Bull. 89: 342-345.
- Kushlan, J.A. 1979. Feeding ecology and prey selection in the white ibis. Condor 81: 376-389.
- Kushlan, J.A. 1980. The status of crocodilians in south Florida. I.U.C.N. Crocodile Specialists Group. Unpublished MS.
- Kushlan, J.A., and P.C. Frohring. (in prep.) Colonial waterbird use of the Everglades estuaries. Proceedings conference on estuarine birds. Univ. of South Carolina, Columbia.
- Kushlan, J.A., and M.S. Kushlan. 1975. Food of the white ibis in southern Florida. Fla. Field Nat. 3: 31-38.
- Kushlan, J.A., and T.E. Lodge. 1974. Ecological and distributional notes on the freshwater fish of southern Florida. Fla. Sci. 37: 110-128.

- Kushlan, J.A., and L.C. McEwan. (in press) Nesting phenology of the double-crested cormorant. Wilson Bull.
- Kushlan, J.A., and L.C. McEwan. (in prep.) The brown pelican population in southern Florida.
- Kushlan, J.A., and L.C. McEwan. (in prep.) The sandhill crane in the Everglades.
- Kushlan, J.A., and W.B. Robertson, Jr. 1977. White ibis nesting in the lower Florida Keys. Fla. Field Nat. 5: 127-131.
- Kushlan, J.A., and D.A. White. 1977a. Nesting wading bird populations in southern Florida. Fla. Sci. 40: 65-72.
- Kushlan, J.A., and D.A. White. 1977b. Laughing gull colonies in extreme southern Florida. Fla. Field Nat. 5: 123-126.
- Kushlan, J.A., J.C. Ogden, and A.L. Higer. 1975. Relation of water level and fish availability to wood stork reproduction in the southern Everglades, Florida. Open File Rep. 75-434. U.S. Department of the Interior, Geological Survey. Tallahassee, Fla. 56 pp.
- Kushlan, J.A., O.L. Bass, Jr., and L.C. McEwan. (in prep.) Wintering waterfowl in the Everglades estuaries.
- Lack, D., and P. Lack. 1972. Wintering warblers in Jamaica. Living Bird 11: 129-153.
- LaHunt, D.E., and G.W. Cornwell. 1970. Habitat preference and survival of Florida duck broods. Proc. Annu. Conf. Southeast. Assoc. Game Fish. Comm. 24: 117-121.
- Lawrence, D.B. 1949. Self-erecting habit of seedling red mangroves (Rhizophora mangle L.). Am. J. Bot. 36: 426-427.
- Layne, J.N. 1974. the land mammals of south Florida. Miami Geol. Soc. Mem. 2: 386-413.

- Lee, C.C. 1969. The decomposition of organic matter in some shallow water, calcareous sediments of Little Black Water Sound, Florida Bay. Dissertation. Univ. of Miami, Fla. 106 pp.
- Lewis, R.R., III. 1979a. Oil and mangrove forests: the aftermath of the Howard Starr oil spill (abstract). Fla. Sci. (supplement) 42: 26.
- Lewis, R.R., III. 1979b. Large scale mangrove restoration on St. Croix, V.I. Pages 231-242 in Proceedings 6th conference on restoration and creation of wetlands. Hillsborough Community College, Tampa, Fla.
- Lewis, R.R., III. 1980a. Oil and mangrove forests: observed impacts 12 months after the <u>Howard Starr</u> oil spill (abstract). Fla. Sci. (supplement) 43: 23.
- Lewis, R.R., III. 1980b. Impact of oil spills on mangrove forests. Page 36 in Second international symposia on the biology and management of mangroves and tropical shallow water communities. Port Moresby, Madang, Papau, New Guinea.
- Lewis, R.R., III. 1981. Economics and feasibility of mangrove restoration. Pages 88-103 in R.C. Carey, P.S. Markovits and J.B. Kirkwood, eds. Proceedings U.S. Fish and Wildlife Service workshop on coastal ecosystems of the Southeastern United States. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C. FWS/OBS-80/59.
- Lewis, R.R., III, and F.M. Dunstan. 1975.
  Use of spoil islands in reestablished mangrove communities in Tampa Bay, Florida. Pages 766-775 in G.E. Walsh, S. Snedaker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.
- Lewis, R.R., III, and C.S. Lewis. 1978. Colonial bird use and plant succession on dredge material islands in Florida. U.S. Army Corps of Engineers Tech. Rep. D-78-14.

- Lewis, R.R., III, C.S. Lewis, W.K.
  Fehring, and J.A. Rodgers. 1979.
  Coastal habitat mitigation in Tampa
  Bay, Florida. Pages 136-140 in
  Proceedings mitigation symposium.
  Gen. Tech. Rep. RM-65. U.S. Department of Agriculture, Fort Collins,
  Col.
- Lindall, W.N., and C.H. Saloman. 1977.
  Alteration and destruction of estuaries affecting fishery resources of
  the Gulf of Mexico. Mar. Fish. Rev.
  39, Pap. 1262. 7 pp.
- Little, E.J. 1977. Observations on recruitment of postlarval spiny lobster, Panulirus argus, to the south Florida coast. Fla. Mar. Res. Publ. 29. 35 pp.
- Longley, W.L., R. Jackson, and B. Snyder. 1978. Managing oil and gas activities in coastal environments. U.S. Fish and Wildlife Service, Office of Biological Services. FWS/OBS-78/54.
- Loope, L.L. 1980. Phenology of flowering and fruiting in plant communities of Everglades National Park and Biscayne National Monument, Florida. Rep. T-593, Everglades National Park, South Florida Research Center. 121 pp.
- Lugo, A.E. 1980. Mangrove ecosystems: successional or steady state? Biotropica. 12(2): 65-73.
- Lugo, A.E. 1981. Mangrove issue debates in courtrooms. Pages 48-60 in R.C. Carey, P.S. Markovits and J.B. Kirk-wood, eds. Proceedings U.S. Fish and Wildlife Service workshop on coastal ecosystems of the Southeastern United States. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C. FWS/OBS-80/59.
- Lugo, A.E., and G. Cintron. 1975. The mangrove forests of Puerto Rico and their management. Pages 825-846 in G. Walsh, S. Snedaker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.

- Lugo, A.E., and S.C. Snedaker. 1974. The ecology of mangroves. Annu. Rev. Ecol. Syst. 5: 39-64.
- Lugo, A.E., and S.C. Snedaker. 1975.

  Properties of a mangrove forest in southern Florida. Pages 170-211 in G. Walsh, S. Snedaker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.
- Lugo, A.E., and C.P. Zucca. 1977. The impact of low temperature stress on mangrove structure and growth. Trop. Ecol. 18: 149-161.
- Lugo, A.E., G. Evink, M.M. Brinson, A. Broce, and S.C. Snedaker. 1975. Diurnal rates of photosynthesis, respiration and transpiration in mangrove forests in south Florida. Pages 335-350 in F. Golley and G. Medina, eds. Tropical ecological systems. Springer-Verlag, New York.
- Lugo, A.E., M. Sell, and S.C. Snedaker.
  1976. Mangrove ecosystem analysis.
  Pages 113-145 <u>in</u> B.C. Patten, ed.
  Systems analysis and simulation in ecology. Academic Press, New York.
- Lugo, A.E., R.R. Twilley, and C. Patterson-Zucca. 1980. The role of black mangrove forests in the productivity of coastal ecosystems in south Florida. Report to E.P.A. Corvallis Environmental Research Laboratory, Corvallis, Oregon. 281 pp.
- MacArthur, R.H., and J.W. MacArthur. 1961. On bird species diversity. Ecology 42: 594-598.
- Macko, S. 1981. Stable nitrogen isotopes as tracers of organic geochemical processes. Ph.D. Dissertation. Univ. of Texas, Austin.
- Macnae, W. 1968. A general account of the fauna and flora of mangrove swamps and forests in the Indo-West-Pacific region. Adv. Mar. Biol. 6: 73-270.
- Mahmoud, I.Y. 1968. Feeding behavior of kinosternoid turtles. Herpetologia 24: 300-305.

- Marathe, K.V. 1965. A study of the subterranean algae flora of some mangrove swamps. J. Indian Soc. Soil Sci. 13: 81-84.
- Martin, A.C., H.S. Zin, and A.L. Nelson. 1951. American wildlife and plants. A guide to wildlife food habits. Dover Publ., Inc., New York. 500 pp.
- Mattox, N.T. 1949. Studies on the biology of the edible oyster, Ostrea rhizophorae Guilding, in Puerto Rico. Ecol. Monogr. 19: 339-356.
- Maxwell, G.R., III, and H.W. Kale, II. 1977. Breeding biology of five species of herons in coastal Florida. Auk 94: 689-700.
- McCoy, E.D., and K.L. Heck, Jr. 1976. Biogeography of corals, seagrasses and mangroves: an alternative to the center of origin concept. Syst. Zool. 25: 201-210.
- McGill, J.T. 1959. Coastal classification maps. Pages 1-22 <u>in</u> R.J. Russell, ed. Second coastal geography conference. Coastal Studies Inst., Louisiana State Univ., Baton Rouge.
- McMillan, C. 1971. Environmental factors affecting seedling establishment of the black mangrove on the central Texas coast. Ecology 52: 927-930.
- McMillan, C. 1975. Interaction of soil texture with salinity tolerance of black mangrove (Avicennia) and white mangrove (Laguncularia) from North America. Pages 561-566 in G. Walsh, S. Snedaker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.
- McNulty, J.K., W.N. Lindall, and J.E. Sykes. 1972. Cooperative Gulf of Mexico estuarine inventory and study, Florida. Phase I, area description. NOAA Tech. Rep. NMFS Circ-368. 127 pp.
- Miller, P.C. 1972. Bioclimate, leaf temperature, and primary production in red mangrove canopies in south Florida. Ecology 53: 22-45.

- Miller, P.C. 1974. The potential use of vegetation to enhance water cooling in holding ponds. Pages 610-627 in J.W. Gibbons and R.R. Scharitz, eds. Thermal ecology. U.S. AEC Conf. 730505.
- Miller, P.C. 1975. Simulation of water relations and net photosynthesis in mangroves in southern Florida. Pages 615-631 in G. Walsh, S. Snedaker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.
- Moldenke, H.N. 1967. Additional notes on the genus <u>Avicennia</u>. Phytologia 14: 301-336.
- Moore, J.C. 1953. The crocodile in the Everglades National Park. Copeia 1953: 54-59.
- Moorman, F.R., and L.J. Pons. 1975.
  Characteristics of mangrove soils in relation to their agricultural land use and potential. Pages 529-547 in G. Walsh, S. Snedaker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.
- Morton, E.S. 1980. Adaptations to seasonal changes by migrant land birds in the Panama Canal Zone. Pages 437-453 in A. Keast and E.S. Morton, eds. Migrant birds in the neotropics: ecology, behavior, distribution, and conservation. Smithsonian Inst. Press, Washington, D.C.
- Morton, J.F. 1962. Wild plants for survival in south Florida. Southeastern Printing Co., Stuart, Fla. 80 pp.
- Morton, J.F. 1964. Honeybee plants of south Florida. Proc. Fla. State Hortic. Soc. 77: 415-436.
- Morton, J F. 1965. Can the red mangrove provide food, feed and shelter? Econ. Bot. 19: 113-123.
- Newell, S.Y. 1974. The succession in the mycoflora of red mangrove (Rhizophora mangle) seedlings. Ph.D. Dissertation. Univ. of Miami, Fla.

- Nisbet, I.C.T. 1968. The utilization of mangroves by Malayan birds. Ibis 110: 348-352.
- Noakes, D.S.P. 1955. Methods of increasing growth and obtaining natural regeneration of the mangrove type in Malaya. Malays. For. 18: 23-30.
- Nugent, R.S. 1970. The effects of thermal effluent on some of the macrofauna of a subtropical estuary. Ph.D. Dissertation. Univ. of Miami, Fla. 198 pp.
- Odum, E.P. 1971. Fundamentals of ecology. Saunders Publ. Co., Philadelphia, Pa. 574 pp.
- Odum, H.T., and C.F. Jordan. 1970.

  Metabolism and evapotranspiration of the lower forest in a giant plastic cylinder. Pages I-165 I-189 in H.T. Odum and R.F. Pidgeon, eds. A tropical rain forest. Div. of Tech. Info. U.S.A.E.C., Oak Ridge, Tenn.
- Odum, H.T., M. Sell, M. Brown, J. Zucchetto, C. Swallows, J. Browder, T. Ahlstom, and L. Peterson. 1974. The effects of herbicides in South Vietnam: models of herbicide, mangroves, and war in Vietnam. U.S. National Academy of Sciences National Research Council, Washington, D.C.
- Odum, W.E. 1970. Pathways of energy flow in a south Florida estuary. Ph.D. Dissertation. Univ. of Miami, Fla. 162 pp.
- Odum, W.E. 1971. Pathways of energy flow in a south Florida estuary. Univ. of Miami Sea Grant Bull. 7. 162 pp.
- Odum, W.E. 1974. Potential effects of aquaculture on inshore coastal waters. Environ. Conserv. 1: 225-230.
- Odum, W.E. 1976. Ecological guidelines for tropical coastal development. IUCN Publ. 42. IUCN, Morges, Switzerland. 60 pp.
- Odum, W.E., and E.J. Heald. 1972. Trophic analyses of an estuarine mangrove community. Bull. Mar. Sci. 22: 671-738.

- Odum, W.E., and E.J. Heald. 1975a. Mangrove forests and aquatic productivity. Chapter 5 in An introduction to land-water interactions. Springer-Verlag Ecological Study Series, New York.
- Odum, W.E., and E.J. Heald. 1975b. The detritus-based food web of an estuarine mangrove community. Pages 265-286 <u>in</u> Estuarine research. Academic Press, New York.
- Odum, W.E., and R.E. Johannes. 1975. The response of mangroves to man-induced environmental stress. Pages 52-62 in E.J.F. Wood and R.E. Johannes, eds. Tropical marine pollution. Elsevier (Oceanography series), Amsterdam, Netherlands.
- Odum, W.E., J.S. Fisher, and J. Pickral.
  1979a. Factors controlling the flux
  of particulate organic carbon from
  estuarine wetlands. Pages 69-80 in
  R.J. Livingston, ed. Ecological
  processes in coastal and marine
  systems. Plenum Press, No. 10 in the
  Ecological Study Series.
- Odum, W.E., P.W. Kirk, and J. Zieman. 1979b. Non-protein nitrogen compounds associated with particles of vascular plant detritus. Oikos 32: 363-367.
- Ogden, J.C. 1969. Checklist of birds of Everglades National Park. Everglades Natural History Association. 30 pp.
- Ogden, J.C. 1978. Status and nesting biology of the American crocodile, Crocodylus acutus, in Florida. J. Herpetol. 12: 183-196.
- Ogden, J.C., J.A. Kushlan, and J.T. Tilmont. 1976. Prey selectivity by the wood stork. Condor 78: 324-330.
- Ogden, J.C., J.A. Kushlan, and J.T. Tilmont. 1978. The food habits and nesting success of wood storks in Everglades National Park, 1974. U.S. Dep. Inter. Natl. Park Serv. Natl. Res. Rep. 16. 25 pp.
- Olexa, M.T., and T.E. Freeman. 1975. Occurrence of three unrecorded diseases

- on mangrove in Florida. Pages 688-692 <u>in</u> G. Walsh, S. Snedaker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.
- Olmstead, I.C., L.L. Loope, and R.P. Russell. 1981. Vegetation of the southern coastal region of the Everglades National Park between Flamingo and Joe Bay. Rep. T-620, Everglades National Park, South Florida Research Center. 18 pp.
- Olsen, D.A., and I.G Koblic. 1975. Population dynamics, ecology and behavior of spiny lobsters, Panulirus argus, of St. John, V.I. II. Growth and mortality. Nat. Hist. Mus. Los Ang. Cty. Sci. Bull. No. 20: 17-21.
- Olsen, D.A., A.E. Dammann, J.F. Hess, J.R. Sylvester, and J.A. Untema. 1973. The ecology of fishes in two mangrove lagoons in the U.S. Virgin Islands. Rep. Puerto Rico Int. Underseas Lab. 42 pp. (unpublished).
- Olsen, D.A., W.F. Herrnkind, and R.A. Cooper. 1975. Population dynamics, ecology and behavior of spiny lobster, Panulirus argus, of St. John, V.I. Nat. Hist. Mus. Los Ang. Cty. Sci. Bull. No. 20: 11-16.
- Onuf, C.P., J.M. Teal, and I. Valiela. 1977. Interactions of nutrients, plant growth and herbivory in a mangrove ecosystem. Ecology 58: 514-526.
- Orians, G.H. 1969. The number of bird species in some tropical forests. Ecology 50: 783-801.
- Orians, G.H., and E.W. Pfeiffer. 1970. Ecological effects of the war in Vietnam. Science 168: 544-554.
- Patterson-Zucca, C. 1978. The effects of road construction on a mangrove ecosystem. M.S. Thesis. Univ. of Puerto Rico at Rio Piedras. 77 pp.
- Payne, W.J. 1970. Energy yields and growth of heterotrophs. Annu. Rev. Microbiol. 24: 17-51.

- Peterson, C.H., and N.M. Peterson. 1979.
  The ecology of intertidal flats of
  North Carolina: a community profile.
  U.S. Fish and Wildlife Service,
  Office of Biological Services. FWS/
  OBS-79/39. 73 pp.
- Pool, D.J., A.E. Lugo, and S.C. Snedaker. 1975. Litter production in mangrove forests of southern Florida and Puerto Rico. Pages 213-237 in G. Walsh, S. Snedaker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.
- Pool, D.J., S.C. Snedaker, and A.E. Lugo. 1977. Structure of mangrove forests in Florida, Puerto Rico, Mexico and Central America. Biotropica 9: 195-212.
- Post, E. 1963. Systematische und pflanzen-Geographische Notizen zur <u>Bostrichia-Caloglossa</u> Assoziation. Rev. Algol. 9: 1-84.
- Preston, F.W. 1979. The invisible birds. Ecology 60: 451-454.
- Provost, M.W. 1959. Impounding salt marshes for mosquito control and its effects on bird life. Fla. Nat. 32: 163-170.
- Provost, M.W. 1969. Ecological control of salt marsh mosquitos with side benefits to birds. Proceedings Tall Timbers conference on ecological animal control. Tallahassee, Fla.
- Provost, M.W. 1974. Mean high water mark and use of tidelands in Florida. Fla. Sci. 36: 50-66.
- Pulver, T.R. 1976. Transplant techniques for sapling mangrove trees, Rhizophora mangle, Avicennia germinans and Laguncularia racemosa. Fla. Mar. Res. Publ. 22.
- Rabinowitz, D. 1975. Planting experiments in mangrove swamps of Panama. Pages 385-393 in G. Walsh, S. Snedaker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.

- Rabinowitz, D. 1978a. Dispersal properties of mangrove propagules. Biotropica 10: 47-57.
- Rabinowitz, D. 1978b. Early growth of mangrove seedlings in Panama, and an hypothesis concerning the relationship of dispersal and zonation. J. Biogeog. 5: 113-133.
- Rabinowitz, D. 1978c. Mortality and initial propagule size in mangrove seedlings in Panama. J. Ecol. 66: 45-51.
- Ramos, M.A., and D.W. Warner. 1980.
  Analysis of North American subspecies of migrant birds wintering in Los Tustlas, southern Veracruz, Mexico. Pages 173-180 in A. Keast and E.S. Morton, eds. Migrant birds in the neotropics: ecology, behavior, distribution, and conservation. Smithsonian Inst. Press, Washington, D.C.
- Randall, J.E. 1967. Food habits of reef fishes of the West Indies. Pages 665-847 in Studies in tropical oceanography. Inst. of Mar. Sci. Univ. of Miami, Fla.
- Ray, J.P. (in press) Fate and effects of petroleum hydrocarbons on mangrove ecosystems.
- Reark, J.B. 1975. A history of the colonization of mangroves on a tract of land on Biscayne Bay, Fla. Pages 776-804 in G. Walsh, S. Snedaker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.
- Recher, H.F. 1966. Some aspects of the ecology of migrant shorebirds. Ecology 47: 393-407.
- Reeve, M.R. 1964. Studies on the seasonal variation of the zooplankton in a marine subtropical in-shore environment. Bull. Mar. Sci. 14: 103-122.
- Rehm, A.E. 1974. A study of the marine algae epiphytic on the prop roots of Rhizophora mangle L. from Tampa to Key Largo, Florida. Dissertation. Univ. of South Florida, Tampa. 183 pp.

- Rehm, A.E. 1976. The effects of the wood-boring isopod, Sphaeroma terebrans, on the mangrove communities of Florida. Environ. Conserv. 3: 47-57.
- Rehm, A.E., and H.J. Humm. 1973. Sphaeroma terebrans: a threat to the mangroves of southeastern Florida. Science 182: 173-174.
- Reid, G.K., Jr. 1954. An ecological study of the Gulf of Mexico fishes in the vicinity of Cedar Key, Florida. Bull. Mar. Sci. 4: 73-94.
- Rivas, L.R. 1962. The Florida fishes of the genus <u>Centropomus</u>, commonly known as snook. Q. J. Fla. Acad. Sci. 25: 53-64.
- Rivas, L.R. 1969. A revision of the poeciliid fishes of the Gambusia punctata species group, with descriptions of two new species. Copeia 4: 778-795.
- Robertson, W.B., Jr. 1955. An analysis of the breeding-bird populations of tropical Florida in relation to vegetation. Ph.D. Dissertation. Univ. of Illinois, Urbana.
- Robertson, W.B., Jr., and J.A. Kushlan. 1974. The southern Florida avifauna. Miami Geol. Soc. Mem. 2: 414-452.
- Russell, S.M. 1980. Distribution and abundance of North American migrants in the lowlands of northern Columbia. Pages 249-252 in A. Keast and E.S. Morton, eds. Migrant birds in the neotropics: ecology, behavior, distribution, and conservation. Smithsonian Inst. Press, Washington, D.C.
- Rutzler, K. 1969. The mangrove community, aspects of its structure, faunistics and ecology. Pages 515-536 in Lagunas Costeras, un simposio. UNAM-UNESCO. Mexico, D.F.
- Rutzler, K. 1970. Oil pollution: damage observed in tropical communities along the Atlantic seaboard of Panama. Bioscience 20: 222-224.
- Saenger, P., and C.C. McIvor. 1975. Water quality and fish populations in a

- mangrove estuary modified by residential canal developments. Pages 753-765 in G. Walsh, S. Snedaker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.
- Sasekumar, A. 1974. Distribution of macrofauna on a Malayan mangrove shore. J. Anim. Ecol. 43: 51-69.
- Savage, T. 1972. Florida mangroves as shoreline stabilizers. Fla. Dep. Nat. Resour. Prof. Pap. 19. 46 pp.
- Schmidt, T.W. 1979. Seasonal biomass estimates of marine and estuarine fishes within the western Florida Bay portion of Everglades National Park, May 1973 to July 1974. Pages 665-672 in R.M. Linn, ed. Proceedings 1st conference on scientific resources in the national parks. U.S. Dep. Inter., Natl. Park Serv. Trans. Proc. Ser. 5.
- Schneider, D. 1978. Equalization of prey numbers by migratory shorebirds. Nature 271: 353-354.
- Scholander, P.F. 1964. Hydrostatic pressure and osmotic potential in leaves of mangrove and some other plants. Proc. Natl. Acad. Sci. U.S.A. 52: 119-125.
- Scholander, P.F. 1968. How mangroves desalinate seawater. Physiol. Plant. 21: 258-268.
- Scholander, P.F., L. van Dam, and S.I. Scholander. 1955. Gas exchange in the roots of mangroves. Am. J. Bot. 42: 92-98.
- Scholander, P.F., H.T. Hammel, E. Hemmingsen, and W. Cary. 1962. Salt balance in mangroves. Plant Physiol. 37: 722-729.
- Scholander, P.F., H.T. Hammel, E.D. Bradstreet, and E.A. Hemmingsen. 1965. Sap pressure in vascular plants. Science 148: 339-346.
- Scholander, P.F., E.D. Bradstreet, H.T. Hammel, and E.A. Hemmingsen. 1966. Sap concentrations in halophytes and

- some other plants. Plant Physiol. 41: 529-532.
- Scholl, D.W. 1965. High interstitial water chlorinity in estuarine mangrove swamps, Florida. Nature 207: 284-285.
- Schwartz, A. 1949. A second specimen of Mustela vison evergladensis Hamilton. J. Mammal. 30: 315-316.
- Schwartz, P. 1964. The northern waterthrush in Venezuela. Living Bird 3: 169-184.
- Scoffin, T.P. 1970. The trapping and binding of subtidal carbonate sediment by marine vegetation in Bimini Lagoon, Bahamas. J. Sediment Petrol. 40: 249-273.
- Seaman, W., C.A. Adams, and S.C. Snedaker.

  1973. Biomass determinations in shallow estuaries; technique evaluation and preliminary data. Pages J1-J23 in S.C. Snedaker and A.E. Lugo, eds. The role of mangrove ecosystems in the maintenance of environmental quality and a high productivity of desirable fisheries. Final Rep. 14-16-008-606 to the Bureau of Sport Fisheries and Wildlife.
- Shemnitz, S.D. 1974. Populations of bear, panther, alligator and deer in the Florida Everglades. Fla. Sci. 37: 157-167.
- Shines, J.E. 1979. Distribution of mangrove communities: State of Florida. U.S.E.P.A. Final Contract 68-03-2636.
- Simberloff, D. 1976. Experimental zoogeography of islands: effects of island size. Ecology 57: 629-648.
- Simberloff, D., and E.O. Wilson. 1969. Experimental zoogeography of islands: the colonization of empty islands. Ecology 50: 278-296.
- Simberloff, D., B.J. Brown, and S. Lowrie. 1978. Isopod and insect root borers may benefit Florida mangroves. Science 201: 630-632.

- Snedaker, S.C. 1974. Mangroves, isopods and the ecosystem. Science 183: 1036-1037.
- Snedaker, S.C. 1978. Mangroves: their
   value and perpetuation. Nat. Resour.
   14: 6-13. UNESCO, Paris.
- Snedaker, S.C. 1981. Mangrove misconceptions and regulatory guidelines. Pages 61-67 in R.C. Carey, P.S. Markovits and J.B. Kirkwood, eds. Proceedings U.S. Fish and Wildlife Service workshop on coastal ecosystems of the Southeastern United States. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C. FWS/OBS-80/59.
- Snedaker, S.C., and A.E. Lugo. 1973. The role of mangrove ecosystems in the maintenance of environmental quality and a high productivity of desirable fisheries. Final Rep. on Contract 14-16-008-606 to the Bureau of Sport Fisheries and Wildlife. 381 pp.
- Snyder, N.F.R. 1974. Breeding biology of swallow-tailed kites in Florida. Living Bird 13: 73-97.
- Southwell, C.R., and J.D. Boltman. 1971.
  Marine borer resistances of untreated woods over long periods of immersion in tropical waters. Biotropica 3: 81-107.
- Spackman, W., D.W. Scholl, and W.H. Taft. 1964. Field guide book to environments of coal formation in southern Florida. Geol. Soc. Am. 67 pp.
- Spackman, W., C.P. Dolsen, and W. Riegal. 1966. Phytogenic organic sediments and sedimentary environments in the Everglades-mangrove complex. I. Evidence of a transgressing sea and its effect on environments of the Shark River area of southwest Florida. Paleotropica 117: 135-152.
- Springer, V.G., and K.D. Woodburn. 1960. An ecological study of the fishes of the Tampa Bay area. Fla. Board Conserv. Prof. Pap. Ser. 1. 104 pp.
- Stark, W.A., II, and R.E. Schroeder. 1971. Investigations on the gray

- snapper, <u>Lutjanus griseus</u>. Univ. of Miami Press, Miami, Fla. 224 pp.
- Sutherland, J.P. 1980. Dynamics of the epibenthic community on roots of the mangrove, Rhizophora mangle, at Bahia de Buche, Venezuela. Mar. Biol. 58: 75-84.
- Tabb, D.C. 1963. A summary of existing information on the freshwater and marine ecology of the Florida Everglades region in relation to freshwater needs of Everglades National Park. Report to the Superintendent of Everglades National Park from the University of Miami Marine Lab. 153 pp.
- Tabb, D.C. 1966. The estuary as a habitat for spotted seatrout, <u>Cynoscion nebulosus</u>. Am. Fish. Soc. Spec. Publ. 3: 59-67.
- Tabb, D.C., and E.J. Heald. 1973. The coastal interceptor waterway. Univ. Miami Sea Grant Coastal Zone Manage. Bull. 4. 10 pp.
- Tabb, D.C., and A.C. Jones. 1962. Effect of Hurricane Donna on the aquatic fauna of North Florida Bay. Trans. Am. Fish. Soc. 91: 375-378.
- Tabb, D.C., and R.B. Manning. 1961. A checklist of the flora and fauna of northern Florida Bay and adjacent brackish waters of the Florida mainland collected during the period July 1957 through September 1960. Bull. Mar. Sci. 11: 552-649.
- Tabb, D.C., and B.J. Yokel. 1968. Report to the Conservation Foundation: pre-liminary ecological study of Rookery Bay Sanctuary, Naples, Florida. Univ. of Miami, Inst. Mar. Sci. 26 pp.
- Tabb, D.C., D.L. Dubrow, and R.B. Manning. 1962. The ecology of northern Florida Bay and adjacent estuaries. Fla. Board Conserv. Tech. Ser. 39. 79 pp.
- Taylor, D.L. 1980. Fire history and maninduced fire problems in subtropical south Florida. Proc. fire history workshop. Tech. Rep. RM-81, Rocky

- Mt. Forest and Range Exp. Stn., U.S.D.A.: 63-68.
- Taylor, D.L. 1981. Fire history and fire records for Everglades National Park 1948-1979. Report T-619, Everglades National Park, South Florida Research Center. 121 pp.
- Taylor, W.R. 1960. Marine algae of the eastern tropical and subtropical coasts of the Americas. Univ. of Michigan Press, Ann Arbor. 879 pp.
- Teas, H. 1977. Ecology and restoration of mangrove shorelines in Florida. Environ. Conserv. 4: 51-57.
- Teas, H. 1979. Silviculture with saline water. Pages 117-161 <u>in</u> A. Hollaender, ed. The biosaline concept. Plenum Publ. Corp.
- Teas, H., and J. Kelly. 1975. Effects of herbicides on mangroves of S. Vietnam and Florida. Pages 719-728 in G. Walsh, S. Snedaker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.
- Teixeira, C., J. Tundisi, and M.B. Kutner. 1965. Plankton studies in a mangrove environment. II. The standing stock and some ecological factors. Biol. Inst. Ocean. Sao Paulo, Publ. 14: 13-41.
- Teixeira, C., J. Tundisi, and J.S. Ycaza. 1967. Plankton studies in a mangrove environment. IV. Size fractionation of the phytoplankton. Biol. Inst. Ocean. Sao Paulo, Publ. 16: 39-42.
- Teixeira, C., J. Tundisi, and J.S. Ycaza. 1969. Plankton studies in a mangrove environment. VI. Primary production, zooplankton standing-stock and some environmental factors. Int. Rev. Gesamten. Hydrobiol. 54: 289-301.
- Terborgh, J.W., and J.R. Faaborg. 1980.
  Factors affecting the distribution and abundance of North American migrants in the eastern Caribbean region. Pages 145-155 in A. Keast and E.S. Morton, eds. Migrant birds

- in the neotropics: ecology, behavior, distribution, and conservation. Smithsonian Inst. Press, Washington, D.C.
- Thayer, G.W., H.H. Stuart, W.J. Kenworthy, J.F. Ustach, and A.B. Hall. 1978. Habitat value of salt marshes, mangroves and seagrasses for aquatic organisms. Pages 235-247 in Wetland functions and values: the state of our understanding. Am. Water Resour. Assoc., Minneapolis, Minn.
- Thom, B.G. 1967. Mangrove ecology and deltaic geomorphology: Tabasco, Mexico. J. Ecol. 55: 301-343.
- Thom, B.G. 1975. Mangrove ecology from a geomorphic viewpoint. Pages 469-481 in G. Walsh, S. Snedaker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.
- Tomlinson, T.E. 1957. Relationship between mangrove vegetation, soil texture and reaction of surface soil after empoldering saline swamps in Sierra Leone. Trop. Agric. 34: 41-50.
- Tomlinson, P.B. 1980. The biology of trees native to tropical Florida. Harvard Univ. Press, Cambridge, Mass.
- Tschirley, F.H. 1969. Defoliation in Vietnam. Science 163: 779-786.
- Tundisi, J. 1969. Plankton studies in a mangrove environment -- its biology and primary production. Pages 485-494 in Lagunas Costeras, un simposio. UNAM-UNESCO. Mexico, D.F.
- Twilley, R. 1980. Organic exports from black mangrove forests in south Florida. Ph.D. Dissertation. Univ. of Florida, Gainesville.
- van der Pijl, L. 1972. Principles of dispersal in higher plants. Springer-Verlag, New York.
- Voss, G. 1969. Preserving Florida's estuaries. Fla. Nat. 19: 2-4.

- Voss, G.L., F.M. Bayer, C.R. Robins, M. Gomon, and E.T. LaRoe. 1969. A report to the National Park Service, Department of the Interior, on the marine ecology of the Biscayne National Monument. Inst. of Marine and Atmospheric Sciences, Univ. of Miami, Fla. 128 pp.
- Wade, R.A. 1962. The biology of the tarpon, Megalops atlanticus, and the ox-eye, Megalops cyprinoides, with emphasis on larval development.

  Bull. Mar. Sci. 13: 545-622.
- Waisel, Y. 1972. Biology of halophytes. Academic Press, New York. 395 pp.
- Walsh, G.E. 1967. An ecological study of a Hawaiian mangrove swamp. Pages 420-431 in G.H. Lauff, ed. Estuaries. American Association Advancement Science Publ. 83. Washington, D.C.
- Walsh, G.E. 1974. Mangroves: a review.
  Pages 51-174 in R. Reimhold and
  W. Queen, eds. Ecology of halophytes. Academic Press, New York.
- Walsh, G.E., R. Barrett, G.H. Cook, and T.A. Hollister. 1973. Effects of herbicides on seedlings of the red mangrove, Rhizophora mangle L. Bioscience 23: 361-364.
- Walsh, G.E., K.A. Ainsworth, and R. Rigby. 1979. Resistance of red mangrove (Rhizophora mangle L.) seedlings to lead, cadmium, and mercury. Biotropica 11: 22-27.
- Wang, J.C., and E.C. Raney. 1971. Distribution and fluctuations in the fish fauna of the Charlotte Harbor estuary, Florida. Mote Marine Laboratory, Sarasota, Fla. 56 pp.
- Wanless, H. 1974. Mangrove sedimentation in geological perspective. Miami Geol. Soc. Mem. 2: 190-200.
- Warner, G.F. 1967. The life history of the mangrove tree crab, <u>Aratus</u> pisoni. J. Zool. 153: 321-335.
- Warner, G.F. 1969. The occurrence and distribution of crabs in a Jamaican

- mangrove swamp. J. Anim. Ecol. 38: 379-389.
- Weinstein, M.P., C.M. Courtney, and J.C. Kinch. 1977. The Marco Island estuary: a summary of physicochemical and biological parameters. Fla. Sci. 40: 97-124.
- Westing, A.H. 1971. Forestry and the war in South Vietnam. J. For. 69: 777-784.
- Witham, R.R., R.M. Ingle, and E.A. Joyce, Jr. 1968. Physiological and ecological studies of P. argus from St. Lucie estuary. Fla. Board Conserv. Tech. Ser. 53. 31 pp.
- Wolff, W.J. 1969. Distribution of nonbreeding waders in an estuarine area in relation to the distribution of their food organisms. Ardea 57: 1-28.
- Wolffenden, G.E., and R.W. Schreiber. 1973. The common birds of the saline habitats of the eastern Gulf of Mexico: their distribution, seasonal status, and feeding ecology. Pages 1-22 in J. Jones, R.E. Ring, M.O. Rinkel and R.E. Smith, eds. A summary of knowledge of the eastern Gulf of Mexico. Inst. of Oceanography, St. Petersburg, Fla. 604 pp.
- Wood, E.J.F. 1965. Marine microbial ecology. Reinhold Publ. Corp., New York. 243 pp.
- Yokel, B.J. 1975a. Rookery Bay land use studies. Environmental planning strategies for the development of a mangrove shoreline. Study 5,

- Estuarine biology. The Conservation Foundation, Washington, D.C. 112 pp.
- Yokel, B.J. 1975b. A comparison of animal abundance and distribution in similar habitats in Rookery Bay, Marco Island and Fakahatchee on the southwest coast of Florida. Prelim. Rep. to Deltona Corp. Rosenstiel School of Marine and Atmospheric Science, Univ. of Miami. 162 pp.
- Yoshioka, P.M. 1975. Mangrove root communities in Jobos Bay. Pages 50-65
  <u>in</u> Final report on Aguirre environmental studies. Puerto Rico Nuclear Center.
- Zieman, J.C., Jr. 1972. Origin of circular beds of Thalassia testudinum in south Biscayne Bay, Florida, and their relationship to mangrove hammocks. Bull. Mar. Sci. 22: 559-574.
- Zieman, J.C., Jr. (in prep.) A community profile: the ecology of the seagrass ecosystem of south Florida. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C.
- Zuberer, D.A., and W.S. Silver. 1975.

  Mangrove-associated nitrogen fixation. Pages 643-653 in G. Walsh, S. Snedaker and H. Teas, eds. Proceedings of the international symposium on the biology and management of mangroves. Univ. of Florida, Gainesville.
- Zuberer, D.A., and W.S. Silver. 1978.
  Biological nitrogen fixation (acetylene reduction) associated with
  Florida mangroves. Appl. Environ.
  Microbiol. 35: 567-575.